209020 25785001

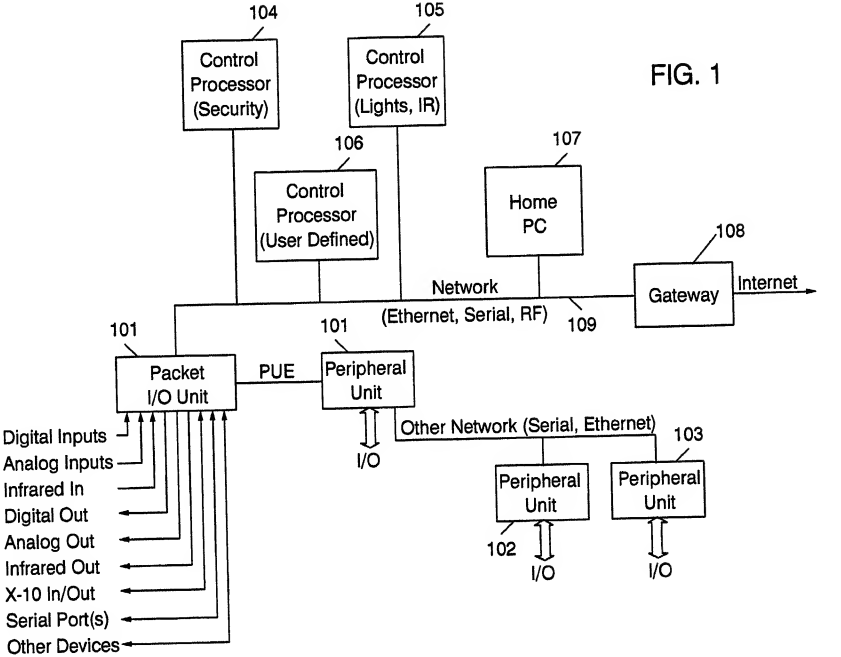


FIG. 1

1/11
013883-000001
PETER D. HALLENBECK

FIG. 2

UNIT #	INPUT #	ASSOCIATED VARIABLES			
1	1	LAST VALUE	SEMA-PHORE	TIMER	TASK #
1	2	LAST VALUE	SEMA-PHORE	TIMER	TASK #
•					
•					
•					
2	10	LAST VALUE	SEMA-PHORE	TIMER	TASK #

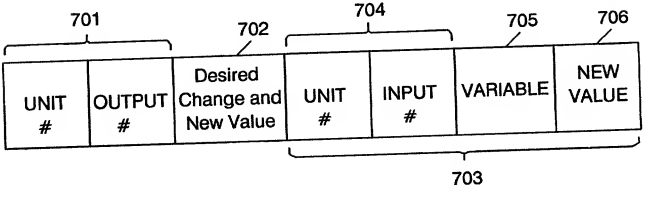
FIG. 3

UNIT #	INPUT #	TYPE OF CHANGE	ACTION TO BE TAKEN
3	1	RECEIVE SERIAL STRING	BROADCAST PACKET (network #, message)
3	2	X % CHANGE IN ANALOG VALUE	DIRECTED PACKET (node, message)
3	3	X INCREASE IN DIGITAL VALUE	SET SEMAPHORE (int. variable, value)
•			
•			
•			
4	10	BIT INPUT CHANGE	DIRECTED PACKET (node, message)

FIG. 4

UNIT #	INPUT/ OUTPUT #	TYPE OF I/O	STRING NAME
4	1	DIGITAL INPUT (1/0)	Outside_Door
4	2	ANALOG INPUT (range)	Downstairs_Temp
4	3	SEMAPHORE	Home/Away_Status
•	•	•	•
5	11	ANALOG INPUT (range)	Outside_Temp

FIG. 7



4/11
013883-000001
PETER D. HALLENBECK

FIG. 5

UNIT #	INT. VAR. INPUT #	TYPE OF CHANGE	UNIT #	OUT-PUT #	VALUE	UNIT #	ANY INPUT #	VAR.	ACTION
1	17	Time_st= hhmm	2	4	256				
1	18	Count ≤0	3	2	0	2	5	SEMA-PHORE	CLEAR
1	19	BIT=1	2	12	1				
•									
•									
•									
3	20	BIT=0	1	15	256	1	15	TIMER	SET TO 30 SEC

FIG. 6

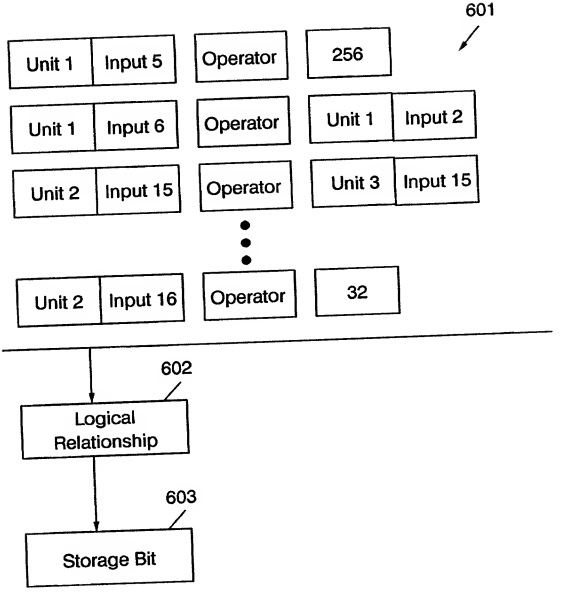

601
Unit 1
Input 5
Operator
256
Unit 1
Input 6
Operator
Unit 1
Input 2
Unit 2
Input 15
Operator
Unit 3
Input 15
Unit 2
Input 16
Operator
32
602
Logical Relationship
603
Storage Bit

FIG. 8

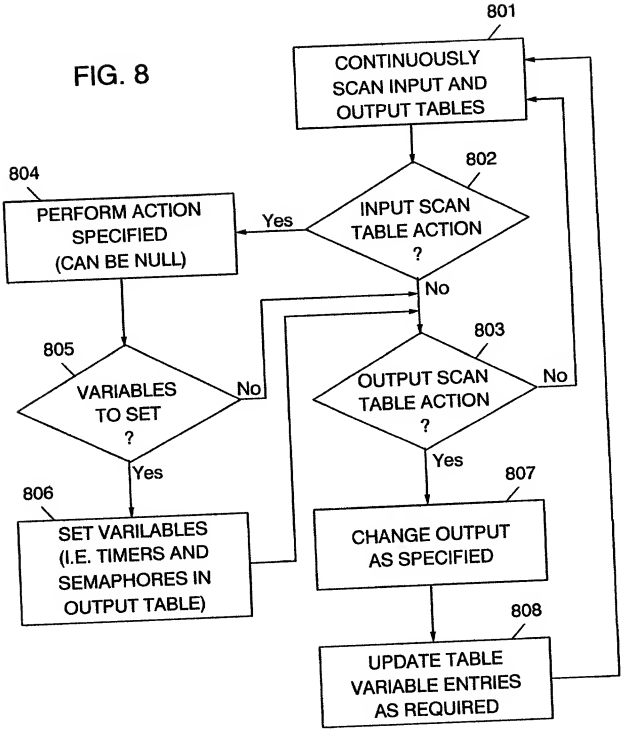

801
CONTINUOUSLY SCAN INPUT AND OUTPUT TABLES
802
INPUT SCAN TABLE ACTION ?
Yes
804
PERFORM ACTION SPECIFIED (CAN BE NULL)
No
803
OUTPUT SCAN TABLE ACTION ?
No
Yes
805
VARIABLES TO SET ?
No
Yes
807
CHANGE OUTPUT AS SPECIFIED
806
SET VARILABLES (I.E. TIMERS AND SEMAPHORES IN OUTPUT TABLE)
808
UPDATE TABLE VARIABLE ENTRIES AS REQUIRED

FIG. 9

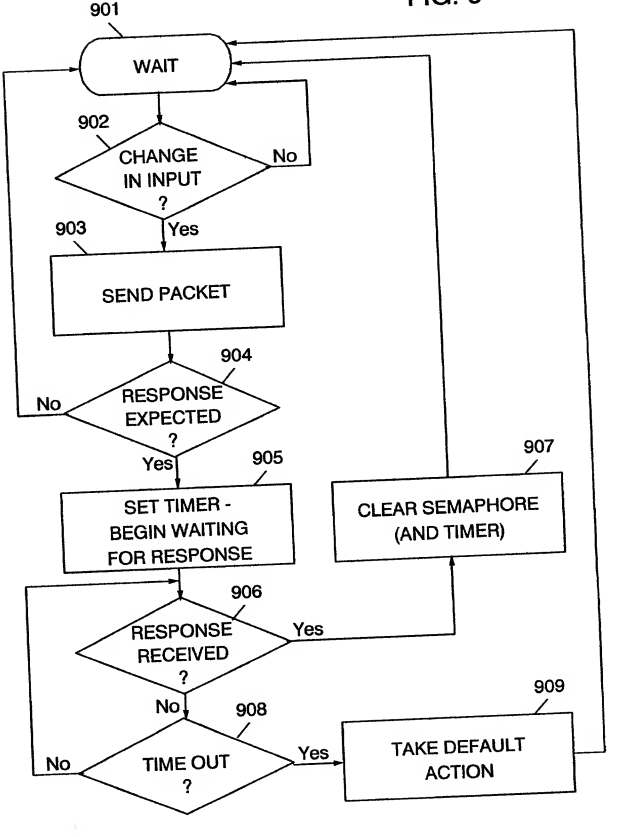

901
WAIT
902
CHANGE IN INPUT ?
No
Yes
903
SEND PACKET
904
RESPONSE EXPECTED ?
No
Yes
905
SET TIMER - BEGIN WAITING FOR RESPONSE
906
RESPONSE RECEIVED ?
Yes
No
908
TIME OUT ?
No
Yes
907
CLEAR SEMAPHORE (AND TIMER)
909
TAKE DEFAULT ACTION

FIG. 10

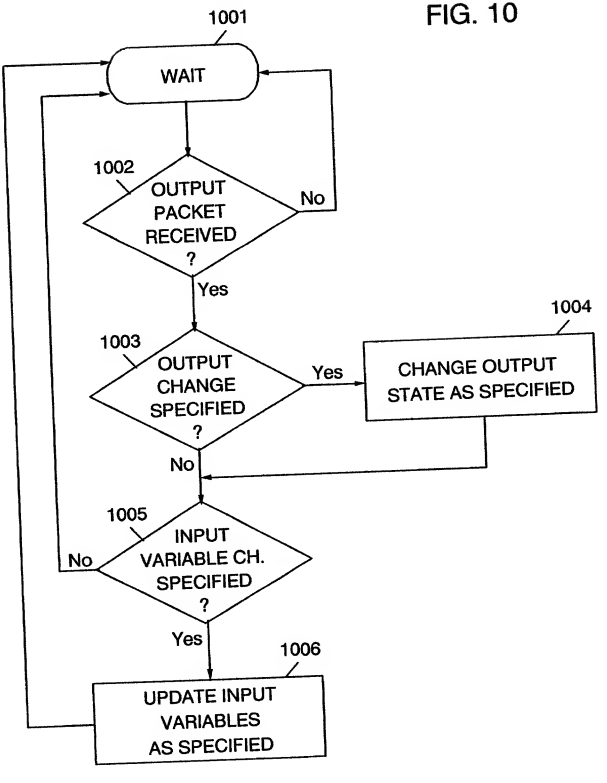

1001
WAIT
1002
OUTPUT PACKET RECEIVED ?
No
Yes
1003
OUTPUT CHANGE SPECIFIED ?
Yes
1004
CHANGE OUTPUT STATE AS SPECIFIED
No
1005
INPUT VARIABLE CH. SPECIFIED ?
No
Yes
1006
UPDATE INPUT VARIABLES AS SPECIFIED

FIG. 11

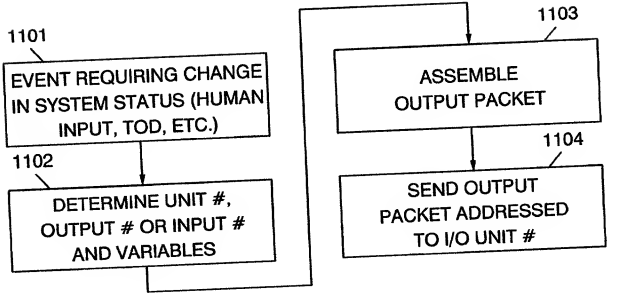

1101
EVENT REQUIRING CHANGE IN SYSTEM STATUS (HUMAN INPUT, TOD, ETC.)
1102
DETERMINE UNIT #, OUTPUT # OR INPUT # AND VARIABLES
1103
ASSEMBLE OUTPUT PACKET
1104
SEND OUTPUT PACKET ADDRESSED TO I/O UNIT #

FIG. 13

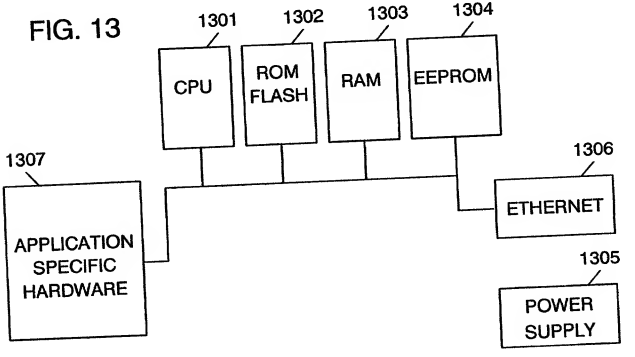

1301
CPU
1302
ROM FLASH
1303
RAM
1304
EEPROM
1307
APPLICATION SPECIFIC HARDWARE
1306
ETHERNET
1305
POWER SUPPLY

FIG. 12

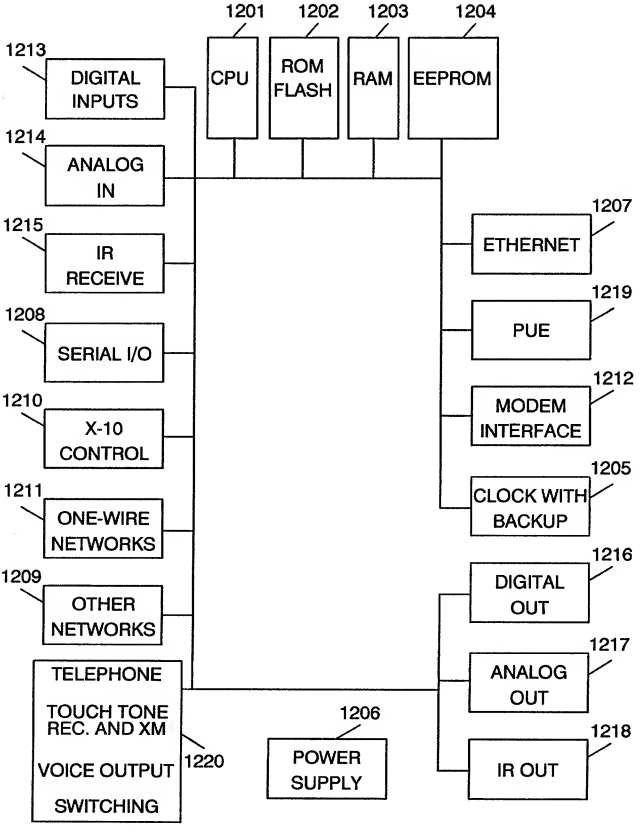
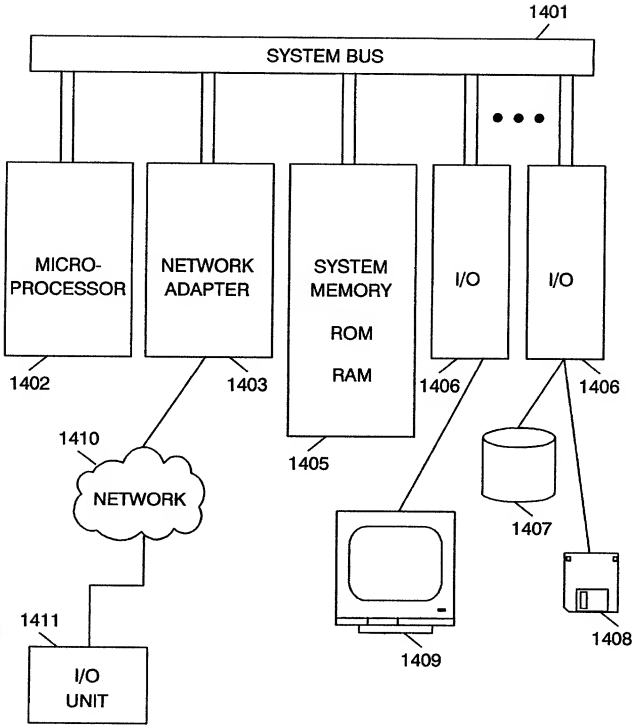

1201
1202
1203
1204
CPU
ROM FLASH
RAM
EEPROM
1213
DIGITAL INPUTS
1214
ANALOG IN
1215
IR RECEIVE
1208
SERIAL I/O
1210
X-10 CONTROL
1211
ONE-WIRE NETWORKS
1209
OTHER NETWORKS
TELEPHONE
TOUCH TONE REC. AND XM
VOICE OUTPUT
SWITCHING
1220
1206
POWER SUPPLY
1207
ETHERNET
1219
PUE
1212
MODEM INTERFACE
1205
CLOCK WITH BACKUP
1216
DIGITAL OUT
1217
ANALOG OUT
1218
IR OUT

FIG. 14


1401
SYSTEM BUS
MICRO-PROCESSOR
NETWORK ADAPTER
SYSTEM MEMORY
ROM
RAM
I/O
I/O
1402
1403
1405
1406
1406
1410
NETWORK
1407
1408
1409
1411
I/O UNIT